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MULLER⁸ deserves the credit for solving this vexing problem. In the fruit-fly he discovered an essentially true-breeding hybrid race, and explained it by a system of balanced lethal factors. These factors assert their lethal effect only when they occur in the homozygous recessive condition. In this race of flies, two such factors are present in heterozygous condition on the same pair of chromosomes, the dominant members of the heterozygous sets being on the opposite chromosomes of the pair. Such a hybrid continues to breed true as such, since any attempt to segregate brings the homozygous recessive condition of one or the other lethal with resulting death to the progeny. The recessives of any heterozygous set on this same chromosome pair will remain concealed when the stock is allowed to inbreed. Occasional crossing-over will cause the appearance of a few (but in predictable frequencies) of these recessives, like the "mutants" thrown by *O. Lamarckiana*.

It is interesting to note that DE VRIES⁹ himself now subscribes to an explanation which is fundamentally identical with the preceding. About one-half of the seeds of *O. Lamarckiana* are empty. DE VRIES explains by saying that *Lamarckiana* produces two kinds of gametes, the typical or this *laeta*, and the *velutina*. Each gamete has a lethal factor closely linked with the character factor. Heterozygous combinations give good seeds, homozygous give sterile. If one of the two lethal factors become "vital," the *O. laeta* or *O. velutina* mutation appears.—M. C. COULTER.

Taxonomic notes.—Miss BURLINGHAM¹⁰ has described five new species of *Russula* from Vermont and one from Massachusetts, most of which seem to be rare.

SCHLECHTER¹¹ has revised two African genera of the Orchidaceae, *Schizochilus* and *Brachycorythis*. In the former genus he recognizes twenty-five species, thirteen of which are new; while in the latter genus twenty-three species are recorded, four of which are new. He also establishes two new genera, *Gyaladenia* and *Diplacorchis*.

MURRILL,¹² in continuation of his investigation of Polypores, has published an account of some of the resupinate forms which are rose-colored, lilac, red, or purple. He presents twenty-six species of *Poria*, five of which are

⁸ MULLER, H. J., Genetic variability, twin hybrids, and constant hybrids, in a case of balanced lethal factors. *Genetics* 3:422-499. fig. 1. 1918.

⁹ DE VRIES, H., Phylogenetische und gruppenweise Artbildung. *Flora* 11-12: 208-226. 1918.

¹⁰ BURLINGHAM, GERTRUDE S., Some new species of *Russula*. *Mycologia* 13: 129-134. pl. 7. 1921.

¹¹ SCHLECHTER, R., Revision der Gattungen *Schizochilus* Sond. und *Brachycorythis* Ldl. *Beih. Bot. Centralbl.* 38:80-131. 1921.

¹² MURRILL, WILLIAM A., Light-colored resupinate Polypores. III. *Mycologia* 13:83-100. 1921.

described as new. In a later publication¹³ he considers the resupinate forms in which yellow is the predominant color, presenting sixteen species of *Poria*, seven of which are new.

BLAKE¹⁴ has revised four genera of Compositae (Asteraceae) which are restricted in their distribution to the tropical and subtropical portions of North and South America, as follows: *Acanthospermum* (eight spp., three new), *Flourensia* (twenty-three spp., five new), *Oyedaea* (twelve spp., three new), and *Tithonia* (ten spp.). The revisions include full bibliography and lists of collections.

KAUFFMAN¹⁵ has described a new genus (*Isoachlya*) of Saprolegniaceae, which is chiefly distinguished "by the presence of the cymose or *Achlya* mode of formation of secondary sporangia, coupled with diplanetic zoospores." It includes three species, one of which is new, the other two being transferred from *Achlya* and *Saprolegnia*.

NAKAI¹⁶ has published a detailed monograph of the Caprifoliaceae of Japan, including 7 genera, 91 species, and 33 varieties. Besides the 15 new species, there are numerous transfers involving new names.

KUDO¹⁷ has published an enumeration of the Labiatae of the Kurile Islands and Yezo Island, with full bibliography and citation of collections. The list includes 38 species, distributed among 21 genera. A new species is described in *Teucrium* and in *Scutellaria*.

BRITTON and ROSE¹⁸ have described a new genus (*Neoabbottia*) of Cactaceae, a treelike form previously named *Cactus paniculatus* Lam., and later *Cereus paniculatus* DC. It is a monotypic genus of Hispaniola, dedicated to Dr. W. L. ABBOTT.—J. M. C.

Physical properties of protoplasm.—SEIFRIZ¹⁹ has carried out microdissection of protoplasm from a number of lower animals and plants, and his work leads to the following conclusions. (1) There is a plasma membrane on

¹³ ———, Light-colored resupinate Polypores. IV. *Mycologia* 13:171-178. 1921.

¹⁴ BLAKE, S. F., Revisions of the genera *Acanthospermum*, *Flourensia*, *Oyedaea*, and *Tithonia*. *Contrib. U.S. Nat. Herb.* 20:383-436. *pls.* 23. 1921.

¹⁵ KAUFFMAN, C. H., *Isoachlya*, a new genus of the Saprolegniaceae. *Amer. Jour. Bot.* 8:231-237. *pls.* 13, 14. 1921.

¹⁶ NAKAI, TAKENOSHIN, Tentamen systematis Caprifoliacearum Japonicarum. *Jour. Coll. Sci. Tokyo* 43: art. 2. pp. 139. 1921.

¹⁷ KUDO, YUSHUN, Enumeratio Labiatarum specierum varietatum formarumque in Insulis Kurilensibus et Insula Yezoensi sponte nascentium. *Jour. Coll. Sci. Tokyo* 43: art. 8. pp. 59. *pls.* 2. 1921.

¹⁸ BRITTON, N. L., and ROSE, J. N., *Neoabbottia*, a new cactus genus from Hispaniola. *Smithson. Miscell. Coll.* 72: no. 9. *pls.* 1-4. 1921.

¹⁹ SEIFRIZ, W., Observations on some physical properties of protoplasm by aid of microdissection. *Ann. Botany* 35:269-296. 1921.